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The Province of Alberta

PETROLEUM AND NATURAL GAS CONSERVATION BOARD

IN THE MATTER OF THE GAS RESOURCES PRESERVATION ACT

AND IN THE MATTER of a Joint Hearing to determine various questions relating to the proposed Export of Natural Gas from the Province of Alberta.

I. N. McKinnon Esq., Chairman

D. P. Goodall Esq.

Dr. G. W. Govier

Session: November 15th, 1951.

Volume 21.

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Statement by Mr. C.E. Smith.

VOLUME 21.

15 November 1951.

MR. C.E. SMITH: Mr. Chairman, I wonder might I mention two matters before you proceed with the further hearing of evidence. The first is that Mr. Woodford of the Consolidated Mining and Smelting Company has advised me that some of his people, one or two, I think, have a submission they would like to present to the Board, and it would be of extreme convenience if it could be done on Monday at or before B.C. Electric. I think that we have already arranged for them to come in there, and I see no reason, personally, why that could not be done unless counsel have some objection to the agenda being slightly interfered with.

At the same time, I should mention that a wire has been received from Gordon S. Wismer, Attorney General of British Columbia, as follows:

"British Columbia Government wishes to make certain representations in the application now pending before the Board for permission to export gas from Alberta stop they have appointed Mr. Alan MacLean, K.C., Assistant Deputy Attorney General, as their representative stop would appreciate if opportunity could be afforded Mr. MacLean to make his submission as early as convenient stop MacLean will be in Calgary on Monday next nineteenth instant.

GORDON S. WISMER
Attorney General. "

I bring that to your attention at the same time. I think, if possible, we might be able to take all these people on the same day.

THE CHAIRMAN: Have counsel any objections to those gentlemen being heard on Monday?

MR. McDONALD: No objection, Mr. Chairman.

MR. NOLAN: Just one point. If we are in the middle of the submission of one of the applicants, it seems to me we should finish that submission before we ask these other gentlemen to come forward. It keeps the record in a more orderly manner, and I think that could be arranged. There are breaks, of course, and when the break comes these gentlemen, I suggest, might be called.

THE CHAIRMAN: We will try to arrange it that way. All right, we will hear the Consolidated Mining and Smelting Company and the representative from the British Columbia Government on Monday.

R. A. RANSON, recalled, already sworn, cross-examined by Mr. Milvain, testified as follows:

Q Mr. Ranson, I wonder would you tell us what is the purpose of making an estimate of transportation costs like you did in the study set out in Exhibit 56?

A It is my understanding that this Board requested such information.

Q Yes. And can you see that it would form a useful purpose in connection with considering the projected pipeline?

A I would think it would, and I presume that the Board

Statement by Mr. Geo. Smith.
R. A. Mason.
Mr. Ex. by Mr. Milvain.

I bring that to your attention at the same time. I think, if possible, we might be able to take all these people on the same day.

THE CHAIRMAN: Have counsel any objections to these witnesses being heard on Monday?

Mr. McDONALD: No objection, Mr. Chairman.

Mr. MILAN: That one point. If we are in the middle of the submission of one of the applicants, it seems to me should finish that submission before we get into other problems to come forward. It keeps the record in a more orderly manner, and I think that could be arranged. There are breaks, of course, and when the break comes these witnesses, I suppose, might be called.

THE CHAIRMAN: We will try to arrange it that way. All right, we will hear the Consolidated Mining and Smelting Company and the representatives from the British Columbia Government on Monday.

R. A. GAMSON, recalled, already sworn, cross-examined by Mr. Milvain, testified as follows:

Q. Mr. Gamson, I wonder could you tell us what is the purpose of making an estimate of transportation costs like you did in the study set out in Exhibit 267

A. It is my understanding that this Board requires such information.

Q. Yes. Did you ever hear it would form a partial purpose in connection with considering the proposed pipeline?

A. I would think it would, and I presume that the Board

thought it would serve a useful purpose or it would not have been asked for, so I did not consider it any further.

Q As an engineer of considerable experience, do you feel it would be useful?

A Yes, I think it would be. I think it would be a very good thing to know if you are going to build such a line.

Q And I suppose the end result as to the cost of transportation would be an important factor in considering the commercial feasibility of the whole scheme?

A Yes, it would be an important factor.

Q And then, too, having determined the cost of transportation, that determination would be another important factor in determining what the rate to consumers would be, or the customers?

A It is one of the important factors.

Q Yes. Mr. Ranson, if I might turn to a short consideration of the Exhibit 56, and I am looking at the moment at the first page, and I want to be sure that I understand it. You start off with the conclusion of your study and that is that the transportation cost is 38.62 cents per Mcf. That is correct, is it?

A Yes, sir.

Q And that 38.62 cents appears to be made up of two main items, one being a cost of 5.06 cents, that is, the cost of transportation within the gathering system to bring and concentrate your gas at the Princess station, is that correct?

A That is correct.

Q And then the next item of 33.56 cents is the balance of

W. A. Ranson,
Direct, Minnie.

thought it would serve a useful purpose or it would not have been asked for, so I did not consider it any burden.

Q As an engineer of considerable experience, do you feel it would be useful?

A Yes, I think it would be. I think it would be a very good thing to know if you are going to build such a line.

Q And I suppose the end result as to the cost of transportation would be an important factor in considering the economic feasibility of the whole scheme?

A Yes, it would be an important factor.

Q And then, too, having determined the cost of transportation, that determination would be another important factor in determining what the rate or tonnage would be, or the economic?

A It is one of the important factors.

Q Yes. Mr. Ranson, if I might turn to a short consideration of the Exhibit 84, and I am looking at the second at the first page, and I want to be sure that I understand it. You start off with the consideration of your study and that is that the transportation cost is 38.62 cents per ton. That is correct, is it?

A Yes, sir.

Q And that 38.62 cents appears to be made up of two main items, one being a cost of 8.06 cents, that is, the cost of transportation within the gathering system to bring and concentrate your ore at the Rainbow station, is that correct?

A That is correct.

Q And then the next item of 30.56 cents is the balance of

the transportation from the Princess station to the customer?

A That is right.

Q Now, in arriving at that total of 33.56 cents, and I take it that that is the aggregate of the various cost items that come into the nine different categories that follow, that is, the cost of gas, system operation and maintenance, customers' accounting and collecting, and so on down to return?

A Yes, with the qualification that here the cost of gas is simply that gas that is bought by the company and not sold, that is used in its business.

Q This item of cost of gas does not include the field cost of gas?

A It does not include the field cost of gas which is sold.

Q Quite. Only that gas that is used in running your compressors and which is lost in the system?

A That is right.

Q So the whole of the cost of gas as a general commodity going through the system is not included in this 33.56 cents?

A That is right.

Q And therefore, of course, not included in the total of 38.62 cents?

A That is right.

Q I would take it, then, Mr. Ranson, that if one were to follow the matter through, in order to find what the cost to the customer would be on the average you would have to start off with the commodity cost of the gas in the field, you would then add to that your transportation cost of

38.62 cents, and then add to that the cost and profit of the distributing system?

A Down to the last element I would agree with you, the cost or profit of the distributing system, perhaps we might say whatever the distributor adds on to his cost of gas, yes.

Q Yes. So that then the cost to the actual consumer of gas would involve now three elements, one, the cost of the gas in the field; two, this transportation cost; three, the cost of the distributing system?

A That is right.

Q Have any calculations been made by you that would arrive at the end cost, say, to a customer in Montreal on such a basis?

A No, sir.

Q So that at the present time you are not in a position to know, so far as your study goes, whether or not a customer in Montreal would be interested in buying gas at the end price that you would have to arrive at?

A No, sir.

Q I am looking now, Mr. Ranson, at page 4 of Exhibit 56, and I notice in the second paragraph you say this:

> "The estimate for this group of expenses is based on costs incurred by other natural gas companies of approximately the same size and character. The division between gathering and transmission is based on relative plant accounts for the two systems."

Now, what companies did you find of the same size and character with which comparison was made?

A Yesterday I named two companies, Tennessee Gas Transmission Company and Texas Eastern Transmission Corporation.

Q Are those the only companies with which you did make comparison?

A No, sir. I mentioned I did make a study of some nineteen companies for the year 1950, and I have the information available on all of those companies, and I was able to see how those costs varied between the companies, and that was for the year 1950. For the year 1949, I made a detailed study of approximately ten companies, this study having been made much earlier than the year 1950. The fifteen companies on the year 1949. I made a rather extensive study of El Paso Natural Gas Company for a period of five years as a matter of studying trends with the growth of the business. Fifteen companies for the year 1949, and those are the larger companies in the United States covering approximately 70 per cent of the entire industry in those fifteen companies. Then I have practically 95 per cent of the industry in those nineteen companies for the year 1950.

Q Tell us, Mr. Ranson, did you find any of the companies with which you made comparison in which there were transmission lines of the length and extent of this proposed one running through unpopulated area?

A Unpopulated area is a relative term, of course. There are rather large proportions of lines, such as El Paso Natural Gas, Mississippi River Fuel Corporation.

Q This proposed line that you studied runs through unpopulated areas of a much greater extent than any company's

operation that you studied in the United States?

A I believe there are more miles of such territory, and perhaps I should say a greater proportion of the miles of this line are through rather unpopulated areas, or, perhaps, I should say areas of very low population density.

Q And by the way, what is the length of the Mississippi system that you spoke of?

A The miles of pipeline?

Q This is of the main transmission line?

A From the field to St. Louis is something under 500 miles, I believe.

Q That would be, your main transmission line would be something under 500 miles?

A They have two lines, of course. There aresomething over a thousand miles of pipeline on that one.

Q All told, but all through a country which is much more heavily populated than that through which this Delhi line would be expected to go?

A Oh, no. Some of that terrain is practically uninhabited, has to be patrolled by aircraft on account of the swamps it goes through. It is quite comparable.

Q Would there be the lengths of, you might say, unpopulated country on that line that you would find on this one that you studied?

A Not the same number of miles.

Q Not the same number of miles?

A No, sir.

Q It would serve a generally speaking denser population than what the proposed line that you studied would?

R. A. Ranson,
Cr. Ex. by Mr. Milvain.

A Are you thinking of the population, sir?

Q Yes.

A I am not sure of that. Here we have a project that will serve approximately 5,000,000 people through some 3,000 miles of pipeline, and the principal population served by that company is the St. Louis area, and I have forgotten that population, but the difference is not great.

Q As you said, there are about 1,000 miles of line there and how much of a population would it serve?

A I just can not recall the population of St. Louis.

(Go to page 1798)

Q Would the population served be equal to or greater than the population served by the proposed pipe line that you are speaking of?

A It is much less. I think it is less than a million people.

Q Less than a million people?

A Yes.

Q And, of course, much less in length?

A Yes.

Q Now, Mr. Ranson, in the Table on page 6 of your exhibit - I was looking for the rate of return - it is the third last line from the bottom, 16,100, was that arrived at by just multiplying your rate base of 230 million by the 7%?

A Yes, sir.

Q So that you have assumed in that calculation the sales of 108,700,000 Mcf. which is shown on page 5 of your submission?

A Yes, sir.

Q And now from what you told me a moment ago, that end price to the customer has not yet been determined, and you, from your own studies, do not know whether or not that volume of gas would, in fact, be sold?

A I did not make a market study on this project. I accepted the figure from the market study.

Q You are just assuming that that can be done?

A That is right.

Q And, of course, if the end price were such it would not attract customers, your assumed conclusion would not come into being, would it?

A Quite right.

Q In your own study, Mr.Ranson, did you give any consideration to the rate schedule for the customers on this line?

A No, sir.

Q You have had considerable experience in appearing before Commissions of this nature, for instance, the Federal Power Commission?

A I have on several occasions appeared before the Federal Power Commission.

Q And you do know that rate schedules are an important consideration in such hearings?

A No.

Q Are tentative rates usually required by the Federal Power Commission?

A I think they usually require some statement as to the rate at which an applicant proposes to initially offer to sell gas.

Q The reason being, I suppose, to decide whether or not the product can be economically sold at the far end of the line?

A Yes. The reason, as I understand it, The Natural Gas Act has a requirement in it that ability to perform must be proven, and that is considered to be one of the elements in such proof.

Q Do you know, Mr.Ranson, whether or not long distance pipe lines in the United States are now adopting the zone system of rates?

A I am not sure I can answer the question about the "now adopting" part, but I would just volunteer that many com-

panies do now have zone rates.

Q And where a zone system of rates is applicable, the cost is different to the customers as they get farther away from the source of supply?

A Under comparable conditions as to load factor and things of that sort that would be true.

Q One normally expected to find in a zone system of rates that the farther you get away towards the end of the pipe line the higher the cost, the higher the rate?

A My only qualification there would be the words "normally expect", and I would simply say where companies have adopted a zone rate, that is the fact. I should add that there are quite a number of companies which do not have zone rates.

Q But isn't it so that most of the long distance lines do have zone rates in the United States?

A Will you help me a little bit where you draw the line as to a long distance pipe line?

Q One something like the Tennessee Gas Transmission?

A That is one that has a zone rate.

Q That is one that has a zone rate?

A Yes.

Q And Transcontinental?

A That is one which has two zones on, I believe, an 1800-mile pipe line.

Q And Texas Eastern?

A That line, I believe, has two zones. Technically, I believe there are three in the rate schedules, one of which is right in the field, I believe. Along the pipe line I think it is divided into two zones.

Q In your study, Mr. Ranson, did you give any consideration as to what would be the effective zone rates for this system?

A No, sir. You must realize that this is an average.

Q Yes? That is what I had concluded, but I wondered if you had considered it, that is all, Mr. Ranson?

A No, sir, I did not.

Q Now, you will recall yesterday, Mr. Ranson, that my learned friend, Mr. Nolan, asked you some questions about the item "Depreciation and Amortization" and you told him that it was calculated on the basis of a 25-year straight line depreciation?

A That is not quite right, but it is very close to that.

Q You put me right, just exactly what it was?

A Each expenditure is amortized so that over that period it is required to completely amortize the property by the end of the 26th year, or, rather, by the end of the 25th operating year, full operating year.

Q And in your opinion, as an engineer of experience, is a 25 or a 26-year period a proper and reasonable one?

A It is a factor which you must determine in view of the particular circumstances. In this case with respect to gas supply. And in this particular case it is a reasonable and proper one.

Q In any scheme of the magnitude of this pipe line, would it be reasonable to anticipate amortizing over a period shorter than 25 years?

A I do not believe you can do so on a sound basis at this time.

Q No. It would not be possible to finance a line that was

amortized on a shorter period?

A I believe that goes beyond the scope of this study, what we can finance, and I would rather not answer that, what can be financed.

Q I see. You are not prepared to express an opinion on that?

A No, sir.

Q And if it should be that your supply of gas was for a period shorter than 25 years, by any material extent, do you think that that would imperil the prospects of the system?

A I believe that some of the costs might be, such as depreciation, might be increased in such a case, but I do not believe shortening the period, say to something like from 25 down to 20, might imperil it, no.

Q You think that would not?

A No, sir.

Q If it were shortened to 15, or 10, or 5?

A I would have to look at it again, I believe. I would not say it would not make it feasible, but I would want to have it studied further.

Q And if it is reduced to 5 or 10 years?

A Oh, I think that is in the range where I would say no.

Q Quite impossible?

A Yes.

Q That is all, thank you very much, Mr. Ranson.

MR.MARTLAND: Might I have permission to ask just one or two more questions, sir?

THE CHAIRMAN: Yes.

.....

CROSS-EXAMINATION BY MR. MARTLAND:

Q I overlooked asking you yesterday, Mr. Ranson, a question with regard to this figure as to interest, which appears at the bottom of page 4 of your exhibit, and I wondered if you would mind just telling me the principal amount of bonds which you had in contemplation, and the interest rates?

A For the third year for which this cost study is submitted, the principal amount of bonds outstanding was $190,000,000.00 and the interest rate on that principal amount was 4%.

Q 4%?

A Yes.

Q And just a question or so with regard to the matter of income tax. You told us yesterday that you had adopted a composite figure of 51.1%, on the basis of Provincial income taxes being different in Ontario and Quebec from what they were in the Provinces west. Would it not be correct, Mr. Ranson, that in the case of this particular company, the bulk of this income would be derived from those two Provinces, Ontario and Quebec, where the rates are higher?

A I missed one word there, the bulk of what would be derived?

Q Of the income?

A The bulk of the revenue would be derived from Montreal, I mean from Quebec and Ontario, and, presumably, the income is directly related to the source of revenue. I believe that is right.

Q Yes? So that another method would have been to estimate the revenue from each of these Provinces and then apply the tax rates specifically with regard to each one rather

than attempting a composite rate?

A That would be one, but I am not certain as to the method used here of dividing income on such a company between the Provinces in which it operates.

Q You did adopt that method with regard to ad valorem tax, Province by Province?

A I did that as to the amount of property in each Province.

Q As to the rate?

A No, sir, as to the property.

Q I thought you told us that there were different mill rates with respect to each of those various Provinces, Mr. Ranson?

A Yes, sir.

Q On page 1783, I think it is, of your testimony yesterday, "I have used a 10 mill rate in Saskatchewan, 20 mills in Manitoba, 30 mills in Ontario, and 40 mills in Quebec." Isn't that right?

A That is my recollection of it, yes sir, but those rates were applied to the property in the particular Province.

Q That is, you applied specific rates in each Province with regard to the property situated in that Province?

A That is right.

Q There is no estimate in your schedule, Mr. Ranson, with regard to storage, and I take it that no instructions were given to you with regard to the possibility of the storage entering into the picture, is that right?

A That is right.

Q I have in mind that there is some reference to the possibility of storage in another exhibit as to markets, but you were not instructed with regard to that?

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A That is right.

Q If storage were to be undertaken, then the cost with respect to storage would properly appear in your schedules to your exhibit?

A I am not sure of that. It depends on your definition of transportation, and if the storage is at the market end of such a project, I am not sure just how you would treat it there.

Q I have in mind that in the exhibit of another applicant that was done with regard to the storage project?

A I am not aware of it.

Q You are not?

A No.

Q And you have already told Mr. Milvain . . .

A I should correct that. I was here and heard the testimony of Westcoast Transmission Company with regard to the inland empire, I am sorry, and the tabulation, I think, was in the transportation cost. Do you agree that that was proper, or is it a matter of judgment?

A Oh, I haven't really given it any thought.

Q Would you calculate it if it related to storage, say in the Province of Ontario, with respect to this particular project?

A If the purpose is to find the total cost of delivering gas to an end customer, and the gas itself in reaching that customer passes through that storage, then I believe it should be included.

Q Thanks very much.

.....

CROSS-EXAMINATION BY MR.NOLAN:

Q Arising out of what you said to my learned friend, Mr. Martland, did I understand you to say that these bonds were to carry 4%?

A I am sorry, I did not clearly understand that?

Q You mentioned the figure of 4% bond interest?

A Yes.

Q Did I understand that the bonds are to be put out at 4%?

A Let us put it this way: That is an assumption which I made for the purpose of calculating income taxes in this cost figure.

Q It was you who fixed it on the figure of 4%?

A I believe it was a plan which had been worked out prior to my making this study, and the indications at that time were that that would be the approximate amount of bonds outstanding in the third year, and that the interest rate might be as high as that.

Q As 4%?

A I am not testifying that the figure would be that, but that is the figure I did use for the purposes of calculating income taxes.

Q Where did you get the figure of 4%, Mr. Ranson?

A I believe it was in some studies which the company had made.

Q If it were 4¼% it would make a great difference in the financial picture, would it not?

A It would lower the income taxes and would lower the transportation cost, I believe.

Q Well, how would it?

A I believe the interest charges are deducted before arriving at the taxable income, so that the taxable income would be lower.

Q Well, can bonds be put out now at 4%?

A That is an arrangement between the borrower and the lender. I do not know of any law against it.

Q No, there is no law, but what is the going rate?

A I do not know that one can quote a going rate on a thing of this sort. I have always presumed it was a matter of negotiation or salesmanship.

Q At any event, it was a figure given to you for you to use for the purposes of your calculation?

A That is right.

Q And that is 4%?

A Yes, sir.

Q Did you tell me that the transportation charges were lowered if you paid more interest?

A Yes, I did, because the income taxes would be lowered,

Q They would be lowered, but would the transportation charges be lower?

A I am speaking of this transportation cost.

Q But the transportation charges themselves would be higher?

A I do not know. You are asking me about what the rate would be. I do not know of any such thing as a transportation charge here.

Q Well, I am afraid I do not understand what you mean. If the bond interest goes up, everything else goes down, does it?

A Not everything, sir. I am speaking about your taxes.

Q Well, your income taxes go down?

A Yes, sir.

Q What about the cost of transporting the gas, does it go up?

A The only element in the cost of transporting the gas which would change here would be the income taxes on the assumption that the rate of return remained the same.

Q Well, I am afraid I do not understand.

MR.MAHAFFY: Mr. Chairman, I would like to ask Mr. Ranson a few questions?

THE CHAIRMAN: Yes.

.....

CROSS-EXAMINATION BY MR. MAHAFFY:

Q Mr.Ranson, in a letter of transmittal attached to this report of yours, you quoted from the Board report, at least the Board's request, and you have made an effort, I take it, to divide your costs as between the gathering system and the transmission system in accordance with that direction, have you?

A I will say this, I hope it is in accordance with the directive. I am not sure just what the Board had in mind in dividing gathering and transmission. We picked an arbitrary point which we had been using in dividing the system, and I have described in the report just what that division is.

Q Yes?

A And I do not know whether that complies with the Board's request or not.

Q Well, I am not suggesting it does. I just want to emphasize that there is a division as between the gathering system and the main line transmission system. That is right, isn't it?

A That is right.

Q Now, I believe Mr. Waterfield, who preceded you on the stand, as you know, said in his testimony that his set-up did not include any field compressor stations, that is, compressor units necessary to get gas from the field pressure into the gathering system line. Is that your understanding?

A Yes, sir.

Q Now, I also gathered from the evidence which has preceded yours that it is likely the applicant here will be after as much gas as it can possibly get in order to satisfy its market requirements? Do you think that is a fair statement too?

A I am sure I do not know about that. That is asking me to say what the company might do in the future as to gas supply.

Q Well, now, nevertheless I wonder then if, as we have done here on previous days, you would assume with me that the gathering system, and behind it the transmission line, is anxious to get gas from a particular field and in order to pick up that gas it becomes necessary for your company to put in compressor units in that field. Now, what I would like to know is how would you, as an expert in this particular phase of the matter, how would you charge out those compressor costs. Would I be right in assuming you would charge them to the gathering system?

A On the basis of the divisions as I have them here they would

be charged to the gathering system.

Q And that would add to the expense of gathering the gas. That is right, isn't it?

A Yes, sir.

Q Well, now, supposing again . . .

A May I add to that last answer. I assume all other factors remain the same, when I said yes. Perhaps the volume being added by reason of the addition of that particular field might increase the volume. You can see there are a number of factors to be considered, but assuming the volumes remain the same this is an increase in total cost.

Q But the cost of that compressor unit we are talking about would come into the general picture of gathering system costs?

A That is right.

Q Now assuming again in order to pick up that gas the gathering system has to put in an absorption plant and there is a recovery of products from that absorption plant, what is called, I believe, natural gasoline, and that natural gasoline is sold, I suppose it would also follow that the benefit of the sales of the natural gasoline would go to the credit of the gathering system?

A I don't know. I can only refer back to what the accounting practice is with natural gas companies. In the United States, and I am not sure that is a guide here, in general such revenues are credited to production expenses.

Q I wonder if you would give me that again. They are credited to production expenses?

A Yes.

Q Now, enlighten me a little further. Production expenses, would that go to the credit of the operator in the field then?

A Well, I think you have raised a point here of the pipe line companies extracting the gasoline, is that it?

Q Well, the pipe line company may be extracting it. I was wondering who was going to get the benefits here in future, perhaps. There are cases in the States, are there not, where the credits from the extraction of by-products has had the effect of reducing the transmission costs with which you are dealing here right through the pipe line, is that not right?

A At the moment I cannot think of one.

Q That is the common practice in the United States, is it, that it has the effect of reducing the cost of gas at the intake of the transmission line?

A That is very difficult to answer. If a company is engaged in the production of the gas itself it would have that effect. If it is buying from someone else I do not know what the effect would be on the negotiations between the pipe line company and the producer. It is pretty difficult to testify as to that.

Q Are you telling me then, Mr. Ranson, that it may make a very material difference just who picks up the gas at the field?

A Well, you tell me more about what you mean by "who picks up the gas at the field".

Q Well, assume a field in Alberta and Trans-Canada Pipe Lines

goes right to that field with a trans-continental pipe line and picks up the gas, that is one type of operation, isn't it?

A Let me see if I understand what you say. They make a purchase at a point in the field from whoever has the gas at that point, is that what you mean?

Q Yes.

A Yes, that is one type of operation.

Q Now what would be the effect in that case of a substantial sale of by-products at that field?

A By whom?

Q Who would get the benefit of the sale, say, of natural gasoline from the absorption plant or sulphur produced at a de-sulphurization plant?

A Maybe I can shorten this a little bit by telling you the assumptions we have made here and the basis on which these transportation costs have been computed. We have assumed that the gas will be delivered at a certain point in each field, the gasoline having been dehydrated, the gas compressed to a certain pressure.

Q I quite understand that but I am asking you to assume certain things because I just want to find out, if I can, from you and from your experience how these matters have been handled in the States and how you propose to handle them here.

A I cannot tell you how Delhi is going to handle it with relation to Trans-Canada Pipe Lines and producers in the field. I have to have a basis on which to calculate transportation costs and that is the basis which I took.

Q Yes. Well, I was asking you to assume that in order to pick up gas in a particular field or fields, this company which you are representing goes into that field and constructs an absorption plant in order that it may get the gas from that field, it then sells the natural gasoline recovery from that plant. Now, would you credit that recovery to the gathering system or to the trans-continental system?

A All I could tell you, according to the classification of accounts with which we are operating, it would be a credit back to production expense. You are assuming it to be a profit on the operation?

Q Yes, I am assuming a profit?

A Yes.

Q What exactly do you mean by "crediting back to production expense"?

A Well, the net income from the gas line plant operation. Sometimes there will be a shorttype of operation performed, an independent company will contract to extract the gasoline.

Q That is right.

A And frequently they will pay a royalty for that extraction.

Q Let us stay with our first example, if you do not mind. What do you mean you would credit it back to production expense? I did not quite follow that.

A Well, in effect it would be reflected as a reduction in the cost of gas.

Q I see. So that the whole trans-continental system would benefit under that way of doing it?

A If you follow that classification of accounts the whole

system would benefit.

Q Now, are there not cases in the United States where the other result follows that I have mentioned, that the gathering system, not only the field gathering system but the gathering system gets the benefit of those profits on those treating plant operations and that benefit does not flow through the trans-continental system in any way?

A Let us talk about an arrangement rather comparable to what you have in mind, that where a pipe line company makes a contract with a producer for the purchase of gas in the field and the producer extracts the gasoline and delivers the residue gas to the pipe line company at a certain price. If the producer made a profit on his gasoline he keeps that since our regulations start at the field price of gas.

Q That is right.

A Now perhaps the pipe line company negotiated a private price with them, I don't know.

Q But if he does get credit for that recovery it reflects a lower price in the entire system of the transmission line?

A It would normally do that, yes, sir.

Q Thanks very much, Mr. Ranson.

CROSS-EXAMINATION BY MR. McDONALD:

Q Mr. Chairman, if I might deal with this matter of bond interest. I am not sure that it was clear what the effect of increased bond interest has on the transportation costs. As I understand it, Mr. Ranson, you have assumed a 7% rate of return?

A Yes, sir.

Q That 7% is clear of income tax?

A That 7% is after payment of income taxes.

Q That is right, yes. That 7% has two elements in it, one is bond interest and the second is the profit or return on equity capital?

A Out of that return you have to pay the bond interest as well as other debt expenses, and what is left over is for the equity capital.

Q And it is the net return on the equity capital on which you base your income tax calculation?

A Well, really, it is that plus the taxes which is the taxable income.

Q Yes, that is true.

A That is right, yes.

Q So if your bond interest is increased, the net effect is that the shareholders of the equity capital just receive less money on a fixed rate of return?

A That is right.

Q The income taxes are charged as an expense?

A That is right.

Q And that is where you get a reduction on your net over-all cost?

A That is where you get the reduction in this transportation cost figure, that is right.

Q MR. C. E. SMITH: I have just two little matters because everything else has been dealt with, Mr. Ranson, and I want to make sure where you get your 108,700,000 Mcf. Is that from Mr. Shattuck's submission that has to be put in in evidence?

A Yes.

Q In your Table 2, that figure is just taken from his construction estimate, is that correct?

A That is correct.

Q And with respect to your consideration with regard to system operation and maintenance costs, you mentioned the fact that you had the opportunity of studying reports and figures submitted by various American companies. I suppose it is also fair to say you studied and considered Mr. Waterfield's report, which is Exhibit 55 here? If you did not study his report you got his information, is that a fair way of putting it?

A Yes, I did.

Q What I have in mind, take such areas as indicated by Mr. Milvain. I gather he was referring to what is known in this exhibit 55 as 2, 3, 4, 5, 6, 7, along that area? You had that in mind when you were figuring your maintenance and operation costs?

A I did.

Q And the same information is contained in this?

A Yes.

Q As to difficult terrain, cost of original construction and so on?

A That is right, as well as the information about the area to the west of that region as to the Prairie Provinces and Alberta as well. I had information as to the character of the terrain throughout.

Q I just wanted to make sure that you did not just depend on some figures you got from American reports, but you also

relied on the information of Mr. Waterfield?

A I had Mr. Waterfield's information, I had his report.

Q Which included a description of the type of land that the line goes through and approximate cost of construction, whatever effect that has on maintenance and operation?

A Yes.

Q Is that a fair way to put it?

A Yes, sir.

Q In addition to all the rest of the information.

EXAMINATION BY DR. GOVIER:

Q Mr. Ranson, I know you told us yesterday the cost of gas used as fuel and lost in the line was a rather small item in the over-all cost picture. I wonder if you would explain again why you accepted 10 cents per Mcf?

A It was just a presumption of what the average cost might be. I knew of some sales being made at high figures. At the present time it is very difficult to determine what the price might be and so I took a figure presuming the highest field price of gas at the present time.

Q 10 cents represents your idea of a reasonable field price, or possible field price at any rate?

A A possible field price.

Q What I was wondering, Mr. Ranson, does that figure include any transportation charge to the point where your average gas will be used?

A It included the transportation costs to a central point in each field only. I did not add on to this gas the transportation cost to where it would be used. Those costs

are in the other transportation costs by reason of the fact that I divided only by the volume of gas sold, the amount coming out and not the input to the system. That difference between input and output takes care of the increment required to transport the gas used.

Q So that one way or another you have taken into account the fact that it is necessary to transport this gas on the average halfway along the line?

A Yes, sir.

Q It has been taken into account but not in this 10 cent figure?

A Yes. Gas used in the most easterly pressure station is worth much more than 10 cents at that point, but the cost is in the cost of the compressor stations and the pipe line to the west of that station so it is in this total figure.

Q Mr. Ranson, some of the other applicants have given costs for the fifth year of operation. I wonder if you have worked out any costs for that year of operation or if you could indicate what the changes would be, just for comparative purposes?

A I have some partially completed studies but not a final figure. The cost per Mcf would be slightly lower than this figure by reason of the larger volume of sale.

Q Do you have a figure worked out?

A No, I do not. My recollection is I have them clear down to the figures of income taxes returned for every year, and based upon those figures remaining constant I have the other figures, and just from that information and the fact of the volume of sales increasing I made the statement that the over-all cost would decrease.

Q Well, I suppose if the Board found later that your figures would be useful, we could get them from you without too much trouble on your part, Mr.Ranson?

A I could finish the preparation of those Tables and submit them.

Q Well, I am not quite certain that we need them, to tell you the truth, but I was thinking of trying to make a comparison?

A I did make a calculation much earlier, I believe, at the time of your Hearing in Edmonton in May, only on the total, but it was not broken down between gathering and transmission, and I could revise those rather readily and show you those, but based on those figures I concluded that this was typical of the average for the first five years, but if you would like to see the fifth year, I can prepare that.

Q Which basis do you think would be a better one for the Board to attempt a comparison of the various pipe line projects, the basis of the third year or the average of the first five, or the basis of the fifth year?

A I believe that the third year cost figure would be in most cases a fair comparison, but I believe you have to consider other circumstances. If you are considering a pipe line which is connecting into a market which will develop quite slowly, I believe to get a proper comparison you might have to consider a year or two later than the third. I do not believe there is a fixed rule as to which year is the best one to consider. The third year in most cases is the year which gives a proper comparison. So far as I can recall, the projects which you are considering should

be very nearly comparable on the year.

Q Would it be the third year cost figures that an investor would be interested in, in comparing two different projects from the point of view of investing?

A I think the investor would be more interested in the third year than in the fifth. He,I think, wants the project on a paying basis by the third year. Five years is generally a long time to wait.

Q I just had one other question, Mr. Ranson. You mentioned that you felt the 25-year amortization period, starting with the first full year of operation, was a reasonable period. Would you say that, even though the permit for gas and the gas contracts should be, say, for 20 years, or would you say that the amortization period should be the same as the contracts and permits?

A I had not considered the term as being of a definite term other than 25 years or more. If there is no assurance of an extension of a term, the property would have to be amortized over the term of the permit.

Q Would you say the same with respct to gas supply contracts?

A Yes, the gas supply contracts should be for that term, if there is no assurance of an extension. As a general rule we do not insist upon that provision because we usually assume that contracts will be extended. As a general rule, the only question on the extension is the price of the gas.

Q What period of years is mostly employed in the United States for amortization purposes on gas pipe lines?

A The rates generally range between 3 and 4%. It will depend

upon the circumstances of each company. I believe there are a few rates slightly under 3%, companies that have been in business for 30 to 40 years, and have used rather high rates in the early years, have found that their gas supply has extended the life of the properties over a much longer period, and then they have adopted lower rates of depreciation. In some of those cases you will find rates as low as 2%, companies that have been in business from around 1890.

Q What is the situation with respect to newly formed companies and newly completed lines?

A Well, some of those rates would be between 3 and 3½% if a gas supply for 20 years is assured, and there is a good probability of additional discoveries which would extend the life of the property. The actual deterioration of the pipe is, in most of these cases, not the important factor, it is the life of the supply.

Q But it is quite common to have an amortization period which would exceed the firm contract period if there is a reasonable hope for an extension of the contract, is that correct?

A Generally that is true, yes, sir.

Q Do you know of any instances where the amortization period is as low as 20 years in new lines?

A I don't know of any. That would be a straight line rate of 5%. I don't know of any. Frequently the thing which is quite important is the financial consideration, the generation of cash for the retirement of debts, and that, on a new company, keeps the rate above 3% in most cases.

Q Thanks.

.....

CROSS-EXAMINATION BY MR. McDONALD:

Q If I might be permitted, Mr. Chairman. With regard to this matter of retiring the bonds, Mr. Ranson, is it so that in these types of financing enter two questions, the question of equity capital and bonded debt? I mean, that is the usual way that you raise your money? I think that in this instance it is 75% and 25%?

A I believe the $190,000,000.00 is rather close to the 75% figure.

Q Close to that?

A Yes.

Q Isn't it so, then, that the man that you are talking about putting up his money, is the man that is going to buy up the bonds, and the equity shareholders are taking the risk, if there is going to be any?

A They take most of the risk, yes.

Q So that when you are talking about amortization and the retirement, first of all you are going to amortize 100% of your line, are you not? With regard to your rate base, your amortization is on your total rate?

A Yes, it is on the physical property.

A So that the depreciation fund is then available to pay off the debt, is that not so, in the ordinary case?

A If the investment remains static and none of that money is used for additions to property, then it is the cash generated in the company and can be used to retire it.

Q That is true, assuming you are not going to reinvest it in the project?

A That is right.

Q That fund is accumulated, and the whole of your depreciation or amortization balance is available to pay that bonded indebtedness?

A That is generally true.

Q It is generally true?

A Yes.

Q So that as long as your supply contract is sufficient in length of time to provide for the 100% earnings of amortization and will retire the bonded indebtedness within the term of the contract, it is financially feasible? I do not know whether I express it quite right or not?

A In a general way, or as a general rule that is what they insist on.

Q That is what they insist on?

A Yes.

Q So that the total amortization is not what you take into account in financing in arriving at the financial feasibility of the scheme? What I am getting at, if you had a permit or a contract for 20 years, and you still had a 3% rate of depreciation, it still would be a feasible scheme?

A As far as the sale of the bonds is concerned, I believe that would be true.

Q Yes?

A You realize there are other securities to be sold, the equity capital.

Q Of course, that is a shareholder's risk, and that is a different thing again?

A That is right.

.....

EXAMINATION BY THE CHAIRMAN:

Q Mr.Ranson, I wonder if you would mind telling me how you arrive at the rate base of $230,000,000.00? You start off with the first year, and could you take the depreciation off it and give me the figures for each year of the rate base?

A Now, for the first year, which is the year, the first full operating year, the gas plant in service is estimated to be $251,500,000.00. The accrued depreciation set up during what we call the second construction year, during which the Western half of the system is operated, is estimated at $1,923,000.00.

Q So that you might say that is minus 1 year?

A Yes, you can call it that.

Q What was that?

A That was the depreciation for minus 1 year.

Q $1,900,000.00?

A Yes, $1,923,000.00. At the beginning of year 1, we have left the sum of $249,577,000.00.

Q Yes?

A At the beginning of year 2, I have a gas plant in service of $252,500,000.00, with $1,000,000.00 worth of construction being done during that year. The accrued depreciation at the beginning of that year is $11,906,000.00, giving a net plant account at the beginning of year 2 of $240,594,000.00.

Q Yes?

A Now, at the beginning of year 3, I have $253,000,000.00 of gas plant in service, with accrued depreciation of $21,931,000.00, or a net plant account of $231,069,000.00.

Q Yes?

A At the beginning of year 4, I have $253,500,000.00 of gas plant in service, and accrued depreciation of $31,977,000.00, giving a net plant account of $221,523,000.00. Now, if I average the net plant account at the beginning of the third year, and at the beginning of the fourth year, so as to get how I come out the third year, I obtain $226,296,000.00, to which I have added materials and supplies of $2,532,000.00, cash on prepayment items of $708,000.00, to obtain a rate base, a total rate base of $229,536,000.00, which I have rounded off and used as $230,000,000.00.

Q You might say, then, that this $229,536,000.00, or the difference between the $229,000,000.00 and the $226,000,000.00 is your working capital?

A Yes, that figure is $3,240,000.00.

Q Mr. Ranson, you were just given those sales of 108,700,000 Mcf. as a figure of sales?

A Yes.

Q Did you inquire into the load factors?

A Yes. I was also given the peak day figures.

Q What peak day figure is there?

A 366,000,000 feet. I am sorry, 346,000,000 feet.

Q And that gives you a load factor of over 84%?

A I thought it was around 86%.

Q In your experience, Mr. Ranson, in the third year of operation of a long-distance pipe line like that, have you ever known a load factor to be as high, particularly in relation to the designed capacity of the line?

A As high as 86%?

Q Yes?

A Yes, I have. I have known them to be as high as 95%.

Q Is that without a storage project?

A Yes, it was, but it had a very large peak load available, off-peak load available. There seems to be two ways to obtain a very high load factor, and it is either to have a storage project or to have a very high off-peak load.

Q You mentioned, I think, that you think in the fifth year of operation, that the cost would be lower with the increased sales. What would the load factor approach then, have you any idea?

A The load factor would go down. I am sorry, I missed that. The figure shows that the load factor goes up. It goes up to 92½%.

Q 92½%?

A Yes.

Q It has to have a pretty big interruptible load to be able to achieve that without a storage project?

A You say they have to have, pardon me?

Q I say, you would have to have a very high interruptible load to achieve that load factor?

A Yes, sir, you would.

Q You had not gone into this matter of load factor yourself, or studied the market?

A Only to the extent that I have reviewed the exhibit which Mr. Shattuck will put in as to the market studies.

Q In your opinion, it is possible that that load factor might be achieved?

A As far as the ability to operate the pipe line, there is no problem. The problem is that of finding enough business

which will buy gas, customers who will buy the gas when it is not required by the firm customers, and the ability to start the delivery of gas to those customers and to interrupt its delivery at the right time, that is the problem.

Q Thanks, Mr. Ranson.

.....

RE-EXAMINATION BY MR.PORTER:

Q Just one question with regard to the subject of storage about which you were asked? So far as you know, there is no storage contemplated on this line in transit, that is, let us say, from here to Toronto?

A No, this plan does not include a storage.

Q There has been some discussion of storage in Western Ontario?

A Yes, I am aware that the company has been discussing the use of some fields in Western Ontario.

Q Now, would that storage be supplied by the local distributor?

A It could be. The local distributor might operate the storage and in that way purchase gas at a much higher load factor and save enough money to pay for the cost of the storage operation.

Q In that case it would not be a cost to be included in the transmission figures?

A No, it would not.

Q There are two kinds of storage, there is storage in transit and storage at the terminal?

A That is right.

Q One may be for the account of the transmission costs and

the other a marketing cost?

A That is right.

.....

EXAMINATION BY DR. GOVIER:

Q Mr. Ranson, could you indicate to us, even approximately, how the total transmission cost of 38.62 cents would be affected by an unfavourable change in load factor? Suppose the load factor was 2% less than you have estimated it to be, and suppose it was 5% less?

A That figure is affected by a decrease in annual sales. If the same annual sales are maintained, and the load factor decreases, meaning that the peak day is up, the effect on this transportation cost is very small. The other problem is to assume that the peak day remains the same and the load factor goes down, in which case it has a material effect on it.

Q You cannot be realistic in that way because you cannot judge your pipe line changes, or you cannot change your pipe line suddenly, and the 346,000,000 feet a day is the capacity of the line, is it not?

A I am not sure that I would say it is the limit.

Q That is the capacity of the line, of the system, having regard to the capital figures, is that not right?

A It might handle a bit more. You, for instance, called attention yesterday to the fact that the flow was calculated at a temperature of 60°, and it might be 40, so it might add 2% to the capacity. The installed horsepower which is included in this estimate is considerably in excess of that which is required, and I believe higher peak days might

be handled, but as the general rule, if this were the limit, then you would have to instal additional compressor station power in order to handle the higher peak days, and you would have to operate more compressor engines in order to do it.

Q Well, suppose, Mr. Ranson, we just assume that the peak day capacity of the line was the designed figure of 346, and through a failure on the part of Trans-Canada to acquire the amount of interruptible load that they had hoped to get, the annual sales decreased, and suppose through that load factor decrease or suppose that through that the load factor decreased 2% or 5%, or whatever figure you would like to take, could you indicate what effect that would have on the transmission costs of 38.62 cents?

A I have part of that answer. Let us say the annual sales remained the same and the load factor went down so that we would not have to instal more compressors to handle it.

Q You want it the other way?

A I am sorry, but that is an answer I happened to have worked out.

Q All right, let us have your answer, Mr.Ranson?

A I have made some calculations as to the additional power that would have to be added to the system in order to carry the higher peak day, and have carried this through to see what the incremental costs would be for the handling of additional gas, and from 346,000,000 of capacity up to a figure of 489,000,000 of capacity, that incremental cost is practically 36 cents. Now, that is the average over that range from 346,000,000 to 489,000,000.

Q That is 36 cents per Mcf. in addition to the 38.62 cents?

A That is right. I use that as the incremental cost because of the load factor, and that factor is 32.4. That is taking the load factor into account and the incremental costs.

Q What would the over-all projected load factor be with this peak day and the same annual sales?

A At the 489,000,000 peak day it is 61% approximately.

Q What would the average transmission costs be under those circumstances?

A I am not sure I can weight that out so readily as that, Dr. Govier, but you can say it is going to be between 36 and the 38.6. Is that range narrow enough for you at this time, for your judgment, if the incremental figure is 36?

Q Oh, I do not follow that, Mr. Ranson.

A It is not exactly right, because this calculation that I was making was assuming that I added to the 108.7 billion this additional 32.4 of the load factor.

Q Incidentally, how much additional gas did you assume to be added at this 32.4?

A I am just looking at the figures now. I need that to do the weighting.

THE CHAIRMAN: Possibly while you are doing that we might adjourn for a few minutes.

(Hearing resumed after short adjournment).

Q Did you find that figure, Mr. Ranson, for the incremental volume of gas?

A I have made some calculations during the recess and perhaps this will answer part of your question. I have taken a case for 75 per cent load factor assuming the maximum day remains at 346 million cubic feet. That would reduce the annual sales to 94.6 billion cubic feet. If I assume that the total cost remains the same as shown in the table in the submission of $41,978,000.00 the average total cost would be 44.3 cents. I have made a rather hurried examination of the costs and estimates to see in which of them I might come down some with the lower load factor. I do not believe it is more than enough to account for about 3/10 of a cent there. I believe a figure of approximately 44 cents is the figure which a careful calculation would show.

Q And that would be for a drop in load factor of about 10 per cent, is that right?

A Yes, sir. I worked it out for 75 per cent as compared with the other figure, which is 86.

Q Thanks very much, Mr. Ranson.

Q THE CHAIRMAN: Mr. Ranson, just one question I would like to ask you in connection with the bond interest. Were you notified of the plan for bond retirement? I believe you calculate some figures for the fifth year. What would be your outstanding bonds at that time and the interest in the fifth year?

A It is my recollection that 5 per cent of the bonds are being retired each year, that is, uniformly over twenty years, but I believe there was an exception that there

was no retirement during the first year.

Q 1/19th per year, then?

A Yes. I am not so certain on that. I believe Mr. Shattuck would have more details on the division of the bonds, which we assume. I recall that the amount outstanding in the third year was down to 90 million. That was used for that year.

Q Thanks, Mr. Ranson.

MR. PORTER: Dr. Govier, is it your desire that Mr. Ranson should calculate that fifth year figure or would you like to leave it that he will calculate it at the request of the Board?

DR. GOVIER: I think the latter is perfectly satisfactory, Mr. Porter.

MR. PORTER: I now call Mr. Shattuck. Mr. Chairman, in the exhibit as filed and handed to the parties and other recipients, there are a couple of pages on which corrections have been made and the new pages are here and will have to be inserted in those that have been handed out.

THE CHAIRMAN: Mark that as Exhibit 57.

SUBMISSION, "MARKETS FOR NATURAL GAS IN THE AREA PROPOSED TO BE SUPPLIED BY TRANS-CANADA PIPE LINES LIMITED PUT IN AND MARKED EXHIBIT 57.

MR. PORTER: Yes, and with Exhibit 57 you might also mark a supplement. Exhibit 57 deals with the 5-year period and this supplement projects some of the figures on into the 20th and 25th years.

THE CHAIRMAN: Mark that as 58.

SUBMISSION, "BREAKDOWN OF EXPORT REQUIREMENTS AMONG CLASSES OF SERVICE" PUT IN AND MARKED EXHIBIT No. 58.

MR. C.E. SMITH: Are there two corrected pages plus the submission, is that right?

MR. PORTER: There are three corrected pages to go into Exhibit 57, and there is a supplement numbered 58.

J. G. SHATTUCK, having been first duly sworn, examined by Mr. Porter, testified as follows:

Q Well, Mr. Shattuck, will you state your qualifications for estimating the opinions you are about to give?

A Yes, sir. I am a graduate of Leland Stanford University in civil engineering. I graduated in 1928 and did one year of graduate work. During my school period I did some surveys on drainage jobs, of such engineering work as a student usually does. On graduating I took charge of the engineering and improving of a 600-acre subdivision near San Francisco. Late in 1929 I took a job of assistant engineer in the Department of Public Works in the city of Palo Alto, California. In this work I covered practically all phases of engineering work. Among those works I made preliminary reports on grading submissions, zoning, sewage treatment, street improvements and widening, and made plans for such improvements, and for parks and other public facilities.

In 1932 I became gas engineer for the same city, having charge of the gas distribution system. I designed and installed and operated an auxiliary gas plant. In this same position I designed and recommended

rates for water, gas and electric utilities and assisted in preparing budgets for these same operations.

In the middle of 1938 I left the city of Palo Alto's employ and for six months was area engineer for the Works Progress Administration, having charge of the review and recommendation for acceptance or denial of project applications and the scheduling and engineering of the projects which were being handled by the Administration. This work covered nearly every type of public improvement.

In 1939 I joined the staff of the Federal Power Commission of the United States as associate engineer. Successively, I held positions of engineer, senior engineer, senior rate investigator and principal rate investigator. In these positions I examined the facilities and operation of natural gas companies and public utilities. From such examinations I prepared reports and recommendations for action by the Federal Power Commission. I participated as a staff member in both informal and formal actions with natural gas companies. In formal matters I prepared and presented testimony on market rates, costs and earnings, and assisted the Commission on such matters during the hearings.

During World War II I had charge of a section of the Federal Power Commission staff and reported on the natural gas aspects of the conduct of the war. These included, among others, periodical estimates of manufactured gas supplies for a combined Government agency committee of the Petroleum Administration for War,

the War Production Board and the Federal Power Commission.

In 1946 I left the Federal Power Commission staff to work for E. Holley Poe and Associates advising natural gas companies on markets, rates, costs and earnings. Late in the same year, that is, 1946, I left E. Holley Poe and Associates and joined with Mr. H. Zinder of Washington, D.C., who was also an associate in the Poe organization, in starting the firm now known as H. Zinder and Associates of Washington, D.C. As a member of this group I had charge of making studies on markets, rates, costs and earnings, and continued the same type of professional work which I began when I joined the Federal Power Commission staff. For natural gas companies and public utilities I made reports and examinations of their books and operations and prepared and gave testimony on behalf of such companies before the Federal Power Commission.

In November 1950 I withdrew from this group to enter the same practice individually.

Q In that capacity you were retained to make a study of the problems involved in the projected Trans-Canada Pipe Line which has resulted in this submission?

A That is correct. The H.K. Ferguson Company Limited were employed to prepare studies concerning markets and other aspects of this project for Canadian Delhi and Trans-Canada and they retained me to direct their work for them.

Q Well, now, perhaps it would be as well if you begin by reading your submission and making pauses as we go along.

A This is a report on the "Markets for Natural Gas in the Area Proposed to be Supplied by Trans-Canada Pipe Lines

J. G. Shattuck,
Dir. Ex. by Mr. Porter.

Limited". In this text the conclusion is placed first for the convenience of the readers.

Conclusion

The territory through which Trans-Canada Pipe Lines Limited proposes to build its high-pressure natural gas pipe line has sufficient market for natural gas as a fuel to utilize the proposed pipe line. Within the first five years the initial capacity of the line will be required for firm requirements of the communities proposed to be served. By virtue of its route from Alberta to eastern Canada passing through the more densely populated areas, the pipe line has within economic reach nearly all of the large markets for natural gas in Canada and because of this will be in a prime position to market such additional amounts of natural gas as may become available through exploration and discovery in Alberta and the other prairie provinces. It is confidently expected that additional gas will be discovered and connected to the pipe line and, in such event, that a much larger capacity will be necessary within a relatively short time.

The results of our study show that Trans-Canada can connect the territory outlined in the attached tables and supply it from the requested 365 million cubic feet per day field production and, by the addition of natural gas storage and pipe line capacity to meet the peak day uses, continue to adequately supply the firm requirements of that market for at least 15 years, and probably longer, without any increase in the amount of gas taken from the

field. On the other hand it can, as equally well when additional gas is discovered and made available to the gas line, market larger quantities of gas and supply additional communities in areas adjacent to those enumerated in this study.

Territory Proposed to be Supplied.

The territory proposed to be served consists of the metropolitan areas of Montreal, Ottawa, Toronto, Winnipeg and Regina, the other communities along the pipe line from the gas fields to Montreal, and the communities in the now dwindling natural gas production area in south-western Ontario. In this territory there is presently nearly four and one-half million people in approximately 186 communities. These communities are listed in Table I.

MR. PORTER: I think perhaps it might be interesting to turn to Table I, and not with the idea of reviewing the details but to point out it covers seven pages of listed communities giving their populations in 1941, and 1951 where it is available. Are these 1951 figures taken from the 1951 census, Mr. Shattuck?

A They are taken from the preliminary publications of Canada's census.

Q So that the figures shown in the heading "1951" on Table I are from the preliminary publications of the recent Dominion census?

A That is right. There are exceptions where those figures have not yet been released, which are noted.

Q What is the form of the note?

A There are three notes. One of the notes is that the asterisk opposite the names of the towns, there are two of them, that indicates the population of two small communities, and I believe was taken from the Rand McNally Road Atlas of the United States, Canada and Mexico, being the new census edition, Rand McNally & Company, 1951, being the only estimate we could find of the population. Then there is another one opposite the names of the towns, which consists of two lines going across each other, and that indicates that the figures were taken from the 1950 annual report of the Municipal Statistics, Department of Municipal Affairs of Ontario, and is characterized in the report as the assessed population. There are a few aggregate figures of small communities in which one or more of them is missing and that is noted with the other sign of the three.

Q Go ahead, Mr. Shattuck?

A A detailed study of the markets has been made of 125 of these communities located along the pipe line.

Q Now, at that stage I think it would be well perhaps to pause and explain what you mean by "communities located along the pipe line", because we talk about some other communities in the report later on?

A The requirements have been estimated separately for two parts of the territory. One part, and the part I have referred to here, is the communities along the pipe line, and that is the entire area with the exception of the territories served in southwestern Ontario by the Union Gas Company of Canada, Limited, the Dominion Natural Gas Company,

Limited, and the United Fuel Investments group at Hamilton.

Q And there is another one, the Dominion something?

A I have mentioned that, I think.

Q There are four companies in there, they are set out on page 3, aren't they?

A Oh, yes, the Central Pipe Line Company, Limited, that serves Aylmer. I missed that.

Q Yes. So that in this submission when you refer to communities located along the pipe line, that phrase excludes the part of Ontario served by those four utility companies?

A It does.

Q They are dealt with separately?

A They are.

Q And can be bulked as being with regard to southwestern Ontario?

A That is the territory to which I refer to.

Q And Part A of Table 1 deals with the first group of communities along the pipe line?

A Yes.

Q It does not include southwestern Ontario?

A It does not.

Q All right?

A That is contained in Part B of the same Table. The 125 communities to which I have just referred to are all contained in the first group of communities along the pipe line.

Q Yes?

A These communities have an aggregate population of three and one-half million. The list of these communities is Part A of Table 1. Of these communities taken to represent the

territory to be served, forty communities are now served with manufactured gas.

Q Now, when you say "served with manufactured gas", what exactly do you mean, that there is a natural gas service, or a manufactured gas service, rather, or that there is an adequate supply of manufactured gas, when you say "served"?

A I meant to indicate that there is a manufactured gas system in the town. I am not saying whether it is adequate or inadequate.

Q Adequate or inadequate?

A Yes. The remainder of the communities depend entirely upon other fuels to fill their current requirements. These communities, that is, the 125, were selected from a study of the concentration of population, and the pipe line route was selected in order to furnish the most economical natural gas service to this urban population.

Q Now, Mr. Shattuck, I think the Board would perhaps understand it better if you gave them some idea what you mean by the first words of that paragraph that you have just read, "A detailed study of the markets has been made of 125 of these communities located along the pipe line." Will you tell the Board in outline what you do when you make what you call a detailed study?

A It is a little hard to enumerate it all now, but I believe that most of our activities fell into two groups, one group being that work which results in the estimate of general service requirements, residential, commercial and light industrial.

Q Yes?

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A The second part of it has to do with the estimating of probable sales within the large industrial group of customers. In connection with the first part we made a detailed study of practically every source available as to population, persons per dwelling, and such statistics as would give us some indication of the type of growth that has taken place in the past and some indication of the probable trends if new circumstances did not arise. We sent men to each of these communities of, I think it was, 10,000 population and larger. I would have to refer to that, but that is my memory of our selection. Those men contacted city officials, Chamber of Commerce members, some of the leading merchants, and sometimes bank representatives to get their ideas of what circumstances might change those rates of growth in the future.

Q Yes?

A Based upon -- now, I neglected to say that we also called upon the gas distributors in all the towns, if there were any, and in some of the cities we went to the electric utilities to find out additional information about the communities. The telephone company also furnished us some information.

Q Yes?

A From all of that information we then proceeded to make an estimate of the size and potential consumers in those communities during the future, and applied rates based upon sources of sales in the United States in the most part, but on such occasion as was available from gas sales in Canada to obtain the market figures that we have presented

here.

Q Now, where did you get your information about the number of dwellings?

A From the Canada census publication.

Q From the Canada census publication?

A Yes.

Q Have you been able to bring that up to date, or is that still unpublished?

A The only 1951 census data which we have obtained has been obtained in the preliminary bulletins which give the population. We have not been able to bring up to date from that source any information as to the density of population or, rather, persons per dwelling, or any of the housing characteristics which we were able to get from the 1941 census.

Q Well, you took your 1941 census and did some work, in order to take into account some of the growth, I assume?

A Yes. Well, as a matter of fact, sir, at the time that we took on this job the 1941 census was the last Government publication, except in the Prairie Provinces, where we had the 1945 census.

Q Now, in these territories, these 125 communities, I suppose there were some industries also?

A Yes, that is right. That was the bulk of our field work in this market study, was the obtaining of the fuel consumption from the industries in those communities. We had a number of engineers experienced in fuel uses in industrial plants and interviewed a large number of these by actual calls to the plants, and from those calls we were

able to obtain the quantities and in some cases the price at which the fuel was obtained. That was all done on the basis that we would not present any individual data of any company or plant, but would merely use it in the aggregate to arrive at our judgment as to the amount of gas that could be sold in those areas.

Q Yes?

A We also mailed a request for information to other industries which we did not feel justified in spending the time of a man calling. They were the smaller industries. Of the total fuel consumption surveyed about 80% of it was included in the plants which we made calls on and the remaining 20% we were dependent upon the correspondence.

Q That is the industrial?

A Yes.

Q 80% of the industrial potential was called on?

A That is right. I believe that covers generally our activities.

Q Now, then, will you proceed?

A That the pipe line will benefit a large portion of Canada's population is illustrated by the fact that a 10-mile band, 5 miles each side of the pipe line route, contains more than 50% of the urban population of the four provinces in which the pipe line will be located -- Quebec, Ontario, Manitoba and Saskatchewan. A 40-mile strip, 20 miles each side of the pipe line, contains more than 60% of the urban population and a similar 100-mile strip about 80%. These figures indicate that this project will place a large portion of Canada's urban population within reach of natural-gas service. The towns herein proposed to be served represent

about 60% of the urban population of the four provinces.

Allowance has been made in these estimates for the adjacent area in southwestern Ontario already served with natural gas by the Union Gas Company of Canada, Limited, Dominion Natural Gas Company, Limited, and Central Pipe Line Company, Limited; and the area served manufactured gas by United Fuel Investments, Limited.

This allowance has been based upon testimony of these companies before the United States Federal Power Commission. The amounts used here are the amounts of gas requested from Panhandle Eastern Pipe Line Company after deducting the maximum export permitted. The allowance is low for use in an estimate of Trans-Canada's markets in that it assumes that the maximum allowed will be imported. Further, the estimates presented by the companies to the Federal Power Commission do not contemplate the greater development of natural gas use that will be possible when the Trans-Canada project is completed.

Q Now, let me understand that. These four companies made application to Panhandle for some Texas gas?

A That is the general effect of the application. One of the companies made an application.

Q I see.

A Made a contract with Panhandle and Panhandle applied to make the sale to the Federal Power Commission.

Q To the Federal Power Commission?

A Yes.

Q And in support of the request some evidence was given about the need?

A Yes, sir.

Q In Ontario?

A Yes, sir.

Q And it was the evidence put forward by the companies as to their needs before the Federal Power Commission which you took as the basis of southwest Ontario's demand?

A It is the amount which I included.

Q The amount which you included?

A Yes.

Q Now, you talk about "after deducting the maximum export permitted." As I understand it, the application to export which you have just recently described was rejected?

A It was dismissed without action.

Q And this maximum export permitted must be some other gas; what is that?

A Earlier, I do not remember the exact date, but several years back a similar request in procedure was made by Panhandle to deliver gas to the Union Gas Company of Canada, which was permitted on a certain restricted basis in the amount up to five and a half billion feet per year. Now, I have deducted the five and a half billion.

Q What you say there is that you do not think the five and a half billion will be actually received by these companies?

A I think you have read more into my sentence than I meant, sir.

Q Oh?

A I believe that under optimum conditions that that can be met, but I do not have the knowledge to state that those optimum conditions will take place under circumstances which

will allow Union to obtain the entire amount of gas.

Q So that for the purposes of this estimate you assume that gas will come?

A Yes, sir.

Q And if it does not come your estimate is low?

A Yes, sir.

Q That is what you mean by your sentence on page 3, your last sentence on page 3?

A Yes, sir.

Q All right, very well, sir.

A No allowance has been made for a second adjacent area, which is the portion of the Province of Quebec lying in the St. Lawrence Valley, and the word "south" in there should be corrected to read "east", east of Montreal including the communities of Sorel, Trois Rivieres, Cap de la Madeleine, and Quebec City. The St. Lawrence Valley territory below Montreal and including Quebec has a population of approximately 400,000 people. No study has been made of the load potentials there in connection with this survey. However, the information obtained through utility companies in that area indicates that sales in substantial amounts can be made within a few years after the introduction of natural gas into the area.

Pertinent Characteristics of Territory:

In practically all of the communities proposed to be supplied there is some industrial activity. In the western cities, despite the fact that the territory around them is largely agricultural, industry is growing at a rapid

rate. Many of the eastern cities are highly-developed industrial centres engaged both in primary forms of manufacture as well as the preparation and fabrication of finished products.

The result of this development is a high per capita fuel consumption, now supplied in the most part with bituminous coal and petroleum oils. In the western cities Canadian coal and oil supply the major part of the use. In the Ontario communities United States' coal and imported oil has been the principal source of fuel, although at the present time the use of Canadian oil is increasing. In the area around Montreal about one-half of the coal used for industrial purposes comes from the Maritime Provinces and about one-half from the United States, and the petroleum oils used are imported.

Of the fuel consumption for industrial purposes a little less than 40% is used for heating and little more than 60% is used for processing. While data is not available to determine the proportion of processing which utilizes heat direct from the fuel as contrasted with heat derived from the use of steam, it is presumed that the majority of the fuel for both heating and processing is utilized through steam production.

For the uses in which premium fuels such as propane and the lighter petroleum oils are used, natural gas would represent a highly desirable and beneficial improvement. Where accuracy of heat control or uniformity of heat application is essential in producing high-grade quality of products, natural gas has been found to be without

a peer. In the other uses, such as for boilers and hot-air furnaces in replacement of the heavier grades of oil and bituminous coal, natural gas also has advantages and is generally preferred by plant operators at comparable or even higher prices. Some of the principal savings through the use of natural gas instead of bituminous coal comes through the saving of the labor costs of handling the coal and the maintenance of the coal handling equipment. Other savings are made through lower maintenance costs in the fire-chambers and tubes and the higher efficiency of steam production through the lack of ash formations on the tubes.

The principal fuels for residential and commercial use are also coal and oil. Manufactured gas is used to a limited extent for the heating of small premises. Wood is used for residential heating to some extent in the western portion of the territory. There has been in the past few years a marked transfer from coal to oil, which indicates the readiness of the small consumer to select a more convenient fuel when available at an acceptable price.

In the communities along the pipe line route and included in this survey it is estimated that there are approximately 850,000 dwelling units at the present time. Including the southwestern Ontario area, it is estimated there are at least one million dwelling units.

For the purposes of our estimate of residential consumption in the communities along the pipe line route, 881,500 dwelling units are used as representing the first year of service, and 958,800 dwelling units as representing the fifth year. It may be expected that by the tenth year

of service there will be at least one million dwelling units in these communities.

Of the total volume of fuel used in the four provinces in 1949, about 75% was imported and 25% produced within the Dominion. Because of the slightly higher fuel price level in the areas in which the imported fuel predominates it is expected that natural gas will replace a higher proportion of imported fuels than of Canadian.

Gas Consumers:

It is estimated that by the fifth year of service approximately 859,000 customers will be supplied from the Trans-Canada project.

Q Now, at that point where you say "will be supplied from the Trans-Canada project", that includes what you describe as a long pipe line plus western Ontario?

A It does, and it would be, I believe, fair to say here that a portion of these customers, or about, I believe, 137,000 of them, are in southwestern Ontario. The southwestern Ontario area.

Q Yes?

A And would not be completely supplied here as contemplated from the pipe line project.

Q Yes?

A This amount is composed of about 811,000 residential customers, 45,000 commercial customers and nearly 3,000 industrial customers.

Of the total customers 296,000 are in greater Montreal, 243,000 in the Toronto area, 22,000 in the Ottawa

area, 187,000 in the southwestern Ontario area, 72,000 in other portions of Ontario, 29,000 in greater Winnipeg, 6,000 in Regina and 4,000 in other communities in Manitoba and Saskatchewan.

The residential customers will use gas for cooking, water heating, house heating and in some cases other uses such as gas refrigerators and clothes dryers. The commercial users will provide heat and hot water for their premises and use the gas in a great number of processes ranging from cooking, as in restaurants and bakeries, to special small-scale manufacturing processes. Industrial consumption will range from relatively small plants using gas for special and selective uses for which natural gas will be the premium fuel because of ease of control and application to large ones which will use the gas for direct heat applications such as smelting, sintering and annealing and for the production of steam for processes and in some cases for heating.

I might say that a breakdown of these customers along the pipe line is shown in Table 9, which are the other two sheets which were replaced today, and total some 671,000 customers.

Annual Requirements:

The annual requirements for residential, commercial and firm industrial uses are estimated to begin in the first year at 27 trillions of BTU, which is about 27 billion cubic feet, and increases at nearly a uniform rate to about 54 trillions of BTU in the fifth year. During the same period

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it is estimated that interruptible industrial gas could be sold in amounts between 60 and 70 trillions of BTU.

Within the limits of the pipe line capacity as proposed, it is estimated that total annual sales of about 89 trillion BTU can be made in the first year, 98 trillion BTU in the second, 109 trillion BTU in the third and 113 trillion BTU in each of the fourth and fifth years. With additional pipe line capacity the sales in the fifth year to all classes of service could reach 125 trillion BTU.

It is estimated that by the tenth year the firm requirements will reach 78 trillion BTU per year and, by the fifteenth, more than 100 trillion BTU per year.

Depending upon the amount of additional gas which is discovered and made available to the pipe line, the amount of industrial sales can increase the annual total anywhere from the 125 trillion BTU which can be made available from the amount of gas requested at this time up to about 180 trillion BTU by the fifteenth year.

These amounts do not contemplate the extension f the service beyond the communities listed in Table I nor any substantial increase in deliveries to the southwestern Ontario area than have been requested from Panhandle Eastern Pipe Line Company. By increasing the deliveries to southwestern Ontario and by serving the area along the St. Lawrence River described in the beginning of this discussion even larger amounts of natural gas could be transported and delivered to Canadian markets by Trans-Canada Pipe Lines Limited.

Peak-Day Requirements:

The peak-day requirements for firm uses are estimated to be 156 billion BTU per day in the first winter and to grow to about 312 billion BTU in the fifth winter. By the tenth winter it is expected that the peak-day firm requirements would be more than 500 billion BTU per day and in the fifteenth year about 700 billion BTU per day.

Q Now, those are the requirements of the whole market, not necessarily the requirements of the system, assuming it is not serving the whole market?

A I believe that is right. May I re-phrase it, just to be sure?

Q Yes?

A These are the amounts which we estimate could be sold by the system if it had sufficient gas to do so.

Q Yes.

THE CHAIRMAN: On a firm basis?

MR. PORTER: Yes, if it had the gas.

A I believe that that requires one further explanation. It is possible to take the amounts of gas requested on the average daily basis in Alberta and take them to the market and sell them at a lower load factor, either by the use of addition pipe line capacity or by adding storage as the market develops, and to that extent it means that a large part of these amounts can be met from the amount of gas requested here in this application.

These estimates include no large-building heating. Should additional gas be made available to the pipe line and satisfactory arrangements made for converting year-round

receipts at the field into winter deliveries through natural-gas storage, these peak-day requirements could be increased substantially.

During the first few years of operation there will be pipe line capacity over and above that necessary to satisfy firm peak-day requirements. Such capacity can be employed during the load-development period for the service of gas to interruptible-type users whose deliveries in those years will not be frequently interrupted. As the load develops the firm requirements will gradually replace these interruptible sales with the result that by the fifth year little or no deliveries will be made under interruptible sales requirements on cold days.

From this study it is apparent that Trans-Canada Pipe Lines Limited can with its proposed high-pressure natural-gas transmission project adequately serve the area outlined in this report for a considerable period of time with an allotment of the amount of gas requested in its pending application. Because of its strategic location and the necessary fuel consumption in the area and adjacent areas it can enlarge its facilities to furnish a market for much larger quantities of natural gas as soon as they may be discovered and made available to the pipe line.

(Go to page 1854.)

Q Now, perhaps, in order that we will have the record altogether in one place, you might explain Exhibit 58, just what it does?

A Exhibit 58 presents in three tables estimates covering a 25-year period, which is the period contemplated here as the export period for the purpose of this exhibit. The figures given in table A are a summary of the figures in table B to which are added the allowance for southwestern Ontario. Table A may be considered as an extension of table 2 of Exhibit 57. The allowance for southwestern Ontario is based in the first and fifth years on the data presented to Federal Power Commission as their first and fifth years. The extension of those figures in table A is a nominal allowance which I provided in order to reflect growth of that order. It is not taken from any material which they have submitted.

Q That is your opinion?

A It is my present assumption. I would not care to class it as an opinion because I made no detailed study of their territory.

Q Now, when you say you made no detailed study, you know the number of dwellings and industries and the like?

A I know the number of dwellings and I know generally the type of industry and the state of development of that industry.

Q And do you know something about the degree of saturation and adequacy of supply in that market now?

A I have a general idea. I would not like to rely upon it.

Q Enough to say whether it is fully served or partially served?

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A Well, there are a lot of people in that area who would like to have more gas. That is common knowledge, I believe. The estimates in table A for the communities along the pipe line en route representing the tenth and fifteenth years a continuation of the acceleration of saturation and use which has been assumed through the first five years, and in the remaining ten years of this period growth at approximately the current population growth rate. Table B contains a breakdown of the estimates in the column of table A entitled "Communities along the pipe line route". Table C takes the estimates contained in Tables A and B and assumes a limitation in the annual quantity of gas of 124 billion cubic feet per year and shows the affect of those limitations upon the market estimates.

Q It assumes that your peak is 124 billion cubic feet?

A Yes, sir, the total annual sales.

Q The total annual sales?

A Yes. I believe it would be well to relate that to the 365 million cubic feet per day requested in the application here. That 365 million cubic feet per day in a year would amount to 132.2 billion cubic feet. I am afraid I mispoke myself once or twice in the transition from cubic feet, which you were using, to the Btu. which I have been using.

Q I am a little annoyed about your bringing in those Btu's because it adds more trillions and I am confused enough now.

A I would like to state the limitation was 124 billion cubic feet and is 124,000 billions of Btu., and the total

amount requested by the application of 365 million cubic feet per day of 1000 Btu. gas would amount to 133.2 billion cubic feet per year. The difference between 133 and 124 is consumed as fuel or loss in the project.

THE CHAIRMAN: Does anyone wish to question Mr. Shattuck?

CROSS-EXAMINATION BY MR. MARTLAND:

Q Mr. Shattuck, the letter of transmittal which accompanied the exhibit now Exhibit 57, I see was despatched on the 2nd of November of this year. That is correct?

A Yes.

Q And that exhibit as distributed contained on page 7 certain estimates as to numbers of gas customers estimated, which I presume was the estimate of H.K. Ferguson Company at that time?

A Are you referring to the effect of the superseding page?

Q Yes.

A I think I had better explain. The previous page contained figures as well as Table 9, which omitted a certain segment and a certain portion of the work sheets in this problem. That portion of the work sheets covered all of the houses expected to be constructed in the entire territory from 1954 through the period of the estimate. It was a blunder on our part, and as such affected the whole list of customers and the conclusions expressed in the text. It did not affect any of the estimates because those estimates were combined on other work sheets in which this failure to combine did not appear.

Q I was rather afraid that perhaps all these new customers appeared between the 2nd of November and today's date. You tell me that is not so?

A No, that is not so.

Q You do not anticipate a rise between now and the end of the year at the same rate of increase?

A No, sir.

Q Will you tell me what is meant by the word "preliminary" on the first page? It refers to a preliminary report on markets for natural gas?

A That means that we could refine this project if the client wished to pay for it and go out and count the people, ask them what they felt about it and a number of activities like that, which would be beyond a reasonable expenditure at this time. Later on if the project gets further down the line and gas is allowed to leave Alberta and goes to these markets, then either the pipe line company or the distributors will have to go into much greater detail and make additional studies in order to determine their exact local picture.

Q Now, I notice with reference to this Exhibit 58 and Table B that your reference to your fifth year and your tenth year annual requirements, more than half is represented by interruptible load?

A That is right.

Q Now, what kind of purposes would that gas be purchased for, Mr. Shattuck?

A A very wide range of purposes, sir. It would range from uses for which light oils are now used or propane, for

very precise processes up to the production of steam in steam boilers.

Q It would all be industrial purposes?

A Yes. Those are all industrial purposes there.

Q So am I correct in understanding that up to the tenth year more than half of the gas being exported through this system would be used for industrial purposes in Eastern Canada?

A That is right.

Q And those are purposes which, in so far as natural gas is concerned, are lower grade uses, are they not?

A I do not believe I subscribe to that statement, sir.

Q You do not agree with that proposition?

A Natural gas is a good fuel and it produces good steam just like coal or oil does.

Q I notice that even with respect to the western communities, as set on Table 6, page 2, taking Winnipeg and Regina, that as of the fifth year most of those deliveries, more than half of those deliveries, are for industrial purposes on an interruptible basis?

A Did you refer to Table 6, page 2?

Q Yes.

A Winnipeg is a little under half but nearly half.

Q About half. Regina more?

A Yes, sir.

Q Now, in making this estimate, Mr. Shattuck, I suppose you had to take into account the estimated sale price of this natural gas in the various communities as compared with the existing prices of other competitive fuels?

A If by "price" you refer to a general level of price, of

course, I had to do that to assume that the customer would buy it.

Q Well, in respect to each of these large numbers of industrial users or contemplated industrial users whom you visited, I assume that some price was discussed.

A No, that is the wrong assumption, it was not discussed.

MR. PORTER: This, Mr. Chairman, is a subject of some difficulty. I would like to state the position in which we find ourselves and see what the Board thinks ought to be done. The sale of gas, as in the sale of any other product, is a matter of negotiation within competitive conditions, and those competitive conditions vary from customer to customer and locality to locality. Now, Mr. Shattuck can tell you an over-all figure within a range of what this gas will realize, but if he is pressed to say that gas for a particular industry at a particular place must be sold at such-and-such a figure, that becomes part of the public record and the ability to bargain is completely gone and it becomes a ceiling on price. Now, I will tell you the discussions he has had and I hope that the Board can serve its purpose of determining the feasibility without exposing my client to the, I think, insurmountable difficulty of losing its bargaining power with various consumers all over Canada because we say, "Here is the level at which we are going to negotiate." This price has got to fluctuate within broad limits having regard to competitive conditions, load factors and the like, and that is particularly true, I think, of this case where the expanse of the line is so great and the number of communities so large

and the variety of uses equally large. And that is particularly true, I think, in this case where the expanse of the line is so great and the number of communities so large and the variety of uses equally large.

THE CHAIRMAN: I assume, Mr. Porter, Mr. Shattuck will give the prices within a range for industrial. Would he be prepared to say the price would be so-and-so?

MR. PORTER: That is the very ceiling I want to avoid.

THE CHAIRMAN: Can you suggest to the Board how we are going to determine it?

MR. PORTER: Yes. He will give you within a very narrow range what the gas sold has got to realize and what in his opinion it will realize. I think he has got to do it on an over-all basis. For instance, let me illustrate. You may find an industry in a given place with a very, very high fuel cost due to its geographical position or transportation difficulties. Now, I do not want to say we are going to sell gas at a price that would preclude us from going in there and taking a competitive position. We may, on the other hand, find someone with a plant who has a very fine off-peak demand, a demand that we want to meet at a time when our load is low, an interruptible type of thing. We may go in there with a price without making anything on it for the sake of through-put. Now, it is to avoid being put in the position of saying what the bottom is and what the top is that I am rising now, and I think as we progress with Mr. Shattuck we will give the Board over-all figures from which they will be able to determine

whether they are assuming that amount of money can be raised and this project will stand and function.

THE CHAIRMAN: Well, proceed.

MR. C.E. SMITH: I wonder, sir, before you proceed, is Mr. Shattuck going to give similar figures to what other people have done with regard to some form of table with regard to competitive prices with our fuels and so on? Probably that will help Mr. Martland a bit if we are going to find that. Other people have done something and I do not believe Mr. Porter objects to it. He objects to definite figures set as a sales price. I was wondering if we are going to get similar information as we did with Pacific Northwest.

MR. PORTER: That is what other fuels are worth? I did not understand what that information was because I was not here at that stage.

THE CHAIRMAN: I think what Mr. Smith is referring to, Mr. Porter, is that in any of the submissions supporting market they showed the prices of competitive fuels.

MR. PORTER: I think Mr. Shattuck has that material right across the country. It won't be in the form of a schedule because we are dealing with a great number of localities but he has that material.

MR. MARTLAND: I would still like to have the question answered, sir, subject to whatever ruling you wish to make. The witness was at some pains to indicate that he had visited the larger prospective consumers of gas. This has been discussed with them and this exhibit which we now have before us is the result of that inform-

ation, and as my friend, Mr. Smith, has pointed out, it does not contain the type of material which has appeared in other exhibits. We want to know what the basis of this estimate of Mr. Shattuck's is.

MR. C.E. SMITH: What was the question, again, sir?

BY THE REPORTER (reading):

"Q. Well, in respect to each of these large numbers of industrial users or contemplated industrial users whom you visited, I assume that some price was discussed?

A. No, that is the wrong assumption, it was not discussed."

A THE WITNESS: I think I was interrupted at that point. If I am to answer the question I would like to continue on.

THE CHAIRMAN: Just proceed.

A THE WITNESS: The field engineers who went out to those plants were instructed not to discuss the price at which gas would be sold. They were instructed to ask the price at which fuel was being purchased by those plants That material was brought in to our office and we studied those prices. In a few cases where I made calls personally myself, particularly where I met the gentleman before, of course, they asked me what the price was going to be and I gave them no indication of it. Some of them probably made some mention of a price to see if they could not draw me out but there was no price named, and those people interviewed have no idea as yet of the price at which gas is going to be offered to them.

Q MR. MARTLAND: You say the question of a price was not discussed with any of these potential and industrial consumers who are referred to in your table here?

A That is right.

Q On what basis do you assume that you would be able to obtain that industrial load?

A Based upon the experience of other natural gas vendors taking natural gas into markets and disposing of it to similar type industries.

Q Did any of them indicate that they were prepared to switch over from the type of fuel presently being used to the natural gas proposed to be sold to them?

A Yes, they did. Both in the correspondence and in the interviews they were asked that if they could use natural gas at a competitive level would they use it, and I believe it is right, though I have not counted them, I have reviewed them all and I believe that more than half of them stated they would use it. Many of them did not care to reply to the question.

Q Did they indicate in their replies what would be a competitive level?

A We did not ask that. As far as I know, with one exception, one of my friends, who I think was kidding me a little bit about it, I don't think any price was mentioned.

Q Well, what figures did you have in mind, Mr. Shattuck, when you referred to competitive levels? When you put this query to those industrial purchasers, either personally or in the form of a letter? What do you mean by "competitive level"?

A I meant a level at which if it were offered to them they would accept it. And at the time the survey was begun we had no estimate of cost of the pipeline, we had no basis of arriving at a cost or rate at that time and we did this on the basis of bringing in what their present fuel picture was in order to judge, based upon experience in other places, what the probability was of their taking the gas.

Q Well, what are the prices at which these industrial users are presently purchasing the competitive fuels which they use?

A I can give you some ranges, I believe, that will be a fair example of the territory. We surveyed some 2,000 plants. Obviously, simple ranges can not completely express that. I am sure that you appreciate the price of the fuels is different in the eastern part of the territory than it is in the western.

Q Yes. I wanted to get it in the various sections which you deal with in your schedule, Mr. Shattuck.

A I have work sheets here which cover an area in Toronto and each side of it about, I would guess, 200 miles each side of it. I would have to go into quite detailed figures to tell you that exact range.

Q Dealing now with an area around Toronto, is it?

A It would run from Windsor, let us say, up almost to Montreal.

Q I see.

A Now, these are ranges of prices for a number of fuels, industrial fuels, that were obtained in July of this year.

Q These are figures as of July, 1951?

A That is right.

Q Would you give them to me?

A We have three grades of coal from West Virginia, three from Pennsylvania. Taking the West Virginia nut slack between $10.00 and $11.50. I am going to give these things to you quite approximately because these sources of these were obtained from various customers who are utilities and industrials which might not like the release of their exact figures. The three-quarter slack West Virginia between $10.00 and $11.50; West Virginia prepared stoker between $10.50 and $12.00; Pennsylvanian nut slack between $9.50 and $10.50; three-quarter slack between $10.00 and $11.00; prepared stoker between $11.50 and $12.50. Now, during the time we have been making these studies these prices have been fluctuating and our sources have been irregular, so that we can not make a trend.

Q You do not wish to indicate any present trend?

A No, sir.

Q What about fuel oil?

A No. 6 between $11.50 and $13.50; No. 5, which was introduced at that time, -- I had a date here on that but it slips me at the moment -- between $12.00 and $12.50; Nos. 1 and 2 can be expressed generally as between 15¢ and 16¢; kerosene between 19½¢ and 20¢.

Q That covers the fuels competitive in that area, does it?

A That is a compilation that I used in my working on this study, that I compiled from quite a quantity of material which was submitted.

Q Is propane a competitive fuel within that area?

A No, I do not believe it is a competitive fuel in any area. The price at which natural gas will be offered is certainly low enough that such a price comparison is not important. I have those prices in my working papers but not here.

MR. MARTLAND: Sir, I notice that is about 12:30. It has occurred to me that in the light of the suggestion made by Mr. Smith it might be possible for this witness, knowing what we wish of him, to prepare this material in written form, if that is convenient, and it might save some time, subject to further questioning on it when it is available.

THE CHAIRMAN: I think, Mr. Porter, that is a good idea. I think the witness should be prepared to show the prices of the competitive fuels by communities, that is, the communities listed here, and show the cost of domestic coal or domestic fuels and industrial.

MR. PORTER: Well, there are 126 communities.

MR. CHAIRMAN: Well, he can find some of them. I realize that, but he can give us some idea.

MR. PORTER: That is exactly the material from which he worked it out. I do not want to do it on the basis where we will have another of these long schedules. Would it be satisfactory if he gave us the fuel ranges within the spheres or areas which he used for his competitive picture? For instance, these are largely western Ontario, you can see that, from Windsor on up.

THE CHAIRMAN: There is quite a wide range of territory there, Mr. Porter. I would think there would

be more fluctuation or some fairly large fluctuation in all that territory on different types of fuel.

MR. PORTER: Have you ever lived down there?

THE CHAIRMAN: No, I have not.

MR. PORTER: Well, it fluctuates just like gas does here.

THE CHAIRMAN: With coal isn't there quite a difference in freight?

MR. PORTER: Now, Mr. Shattuck is at the Board's service and he will get out anything that the Board wants.

THE CHAIRMAN: I agree with Mr. Martland and Mr. Smith. I think it would save us time if he could give us a schedule showing the competitive prices by whatever way he has got the information now. If it is by areas, we will take that, but do it from the information he has here.

MR. PORTER: Suppose we discuss that in the recess and we may have some plan to submit when we come back which will facilitate the thing.

MR. S.B. SMITH: It would be a help, I think, if these figures were given in Btu's, as Mr. Shattuck has them.

MR. PORTER: Now, that Btu. study will be quite a study.

DR. GOVIER: He can convert all these to Btu's and it will save everybody a lot of work.

MR. PORTER: I will be very interested

in converting Btu's of three different kinds of coal shipped over three different kinds of transportation and coming from a variety of mines. After all, the Btu value of coal varies in Pennsylvania just the same as it does in Alberta. A ton of whose coal makes how many Btu's?

DR. GOVIER: I do not think Mr. Shattuck will be too much pressed to make that kind of calculation. After all, the prices involved are in ranges.

MR. PORTER: Yes, I agree, and we will do it.

THE CHAIRMAN: I think a lot of time will be saved. I was wondering if there will be much use going on with Mr. Shattuck's cross-examination now until the information is made available.

MR. PORTER: He can stand down and do that job.

MR. MARTLAND: I just made the suggestion because it will obviate the necessity of doing it in the witness box.

MR. PORTER: If I thought it would save any minutes in the witness box I would be delighted but I am afraid it will only result in the use of time in cross-examination. It will probably take more time than it will to take the witness to do it in the witness box. However, it does increase the working hours of my profession and perhaps I should not oppose it.

MR. MILVAIN: It is my feeling, Mr. Chairman, that if I were cross-examining Mr. Shattuck, which I propose to do, that I would much rather have the inform-

ation completely before us before attempting to cross-examine him, otherwise I may seek to dig our in a long, round-about manner through cross-examination the information which he will give us if he proceeds to tabulate it as has been suggested.

MR. McDONALD: I have nothing to add, Mr. Chairman.

MR. PORTER: Now, Monday we have three guest speakers. Shall we set a time for Mr. Shattuck to be back? I do not know how much of a chore this is.

Q THE CHAIRMAN: Mr. Shattuck, have you any idea how long it will take to prepare this in tabular form?

A I think to do a job for presentation it quite a chore. Before I comment further I would like to study it and see what it amounts to. I have used it by reviewing it but I have not set it down in that form in which it deserves to be set down to give it the effect it should have.

MR. PORTER: I want to keep the gentlemen working Monday morning, that is all.

THE CHAIRMAN: Mr. Nolan, are you ready to go on?

MR. NOLAN: Yes, we are ready, Mr. Chairman, but we are very loath to go on. What we go on with is going to be interpolated by cross-examination of Mr. Shattuck and something else. I am also concerned about the fact, sir, that Monday is going to be a broken day, because, as Mr. Porter says, we have some gentlemen appearing before us and my anxiety has always been to

present my case and close it. I think it is most useful for the purposes of the record and for the assistance of the Board if it is done that way. If it is to be in piecemeal I think it loses a great deal of its effect and while we may lose a half a day by reason of Mr. Shattuck preparing the necessary material, I do think, in the long run, we will gain by it.

THE CHAIRMAN: I gather you would like us to adjourn now until Monday morning.

MR. NOLAN: I am very sorry to see any adjournment, sir, but I would rather not go on, if I may be permitted to say so, because of the many interruptions that will take place between now and next Tuesday morning.

MR. C.E. SMITH: Maybe we had better call for volunteers, sir.

MR. PORTER: While speaking of piecemeals, I have no different view about the virtue of getting your case in in a single piece, but having some such ambition you can see what is going to happen to me if effect is given to Mr. Nolan's proposal. When does Mr. Shattuck come back? I do not know whether Mr. Shattuck will be ready Monday at noon or not and he does not, either.

THE CHAIRMAN: It might take him a few days, in which case Mr. Nolan might be able to finish his and then he can come back.

MR. PORTER: If we stand Mr. Shattuck aside until Mr. Nolan is finished?

THE CHAIRMAN: Depending on how long Mr. Shattuck will take to do the analysis.

Q DR. GOVIER: Mr.Shattuck, what, in your opinion, would be a reasonable number of areas for which to compute these costs?

A That is almost as hard to state as the other. I should explain that I have given a good deal of weight to the individual price paid by each industry which I have studied, and so I have been able to use figures, for instance, those I have just read, as a control in making my estimate. I have used what that particular purchaser has been able to do as a buyer of fuel, and I have reduced the data that I have here from some four or five thousand sheets of paper, to a range that can be expressed here, and I have expressed these prices here which were paid and which work was done independently by men on the industrial survey, or men who did not work on the industrial survey, but represented freight rates and quotations that were generally accepted, and I have done it with relation to freight rates at the other end, and I have done it to test my use of the customer's representation as to his price. And it will take a review of that data, and I must consider how long each item will take and how much weight to give to each of these customers before I make that estimate. I can have that estimate this afternoon.

MR. C. E. SMITH: Could not Mr. Shattuck pick out something that he likes? After all, it is their show. Could not he pick out something like Toronto, Montreal, Windsor, St.Catherines, Winnipeg, Regina, something of that nature, would that be too difficult, and not to go into every town in Ontario?

A I believe the answer to Mr. Smith's question, and to yours,

is that most of the fuel is consumed in a few areas, probably ten would take a large percentage of it.

Q DR. GOVIER: That is what I was getting at, if the number of communities you had to deal with could be reduced to six, or eight, or ten, then the job becomes simpler, doesn't it?

A No. The reason I made the explanation before was that I believe that the test whether you sell an industrial customer or not is not what the generally-quoted price in the area is, or was at this time, but is the experience, or what his experience of buying fuel has been, and that is a matter of taking the customers individually and consolidating it in such a way that it presents a fair picture and yet does not disclose any one company's fuel position.

Q THE CHAIRMAN: Mr. Shattuck, did I understand you to say that you thought you could prepare it this afternoon?

A I said I could make an estimate right after lunch.

Q MR.PORTER: An estimate of how long it will take?

A Let me explain, in the first place, that the actual survey papers are not with us. We have a consolidation of that, but there is about, I guess, 150 or 200 pounds of express which we did not bring up with us. It can be prepared, possibly, in Washington in my office and 'phoned in. Those mechanics of it take a little time.

THE CHAIRMAN: Mr. Nolan, have you any idea how long it will take you to present the rest of your case?

MR.NOLAN: Well, that, of course, depends so much upon the other applicants, Mr.cChairman, but I

would think that so far as my own material is concerned, it can be given in direct examination within a period of two hours.

THE CHAIRMAN: As there is nobody wishes to go on at the moment, I think we will adjourn until Monday morning, and then decide who we are going to hear after we hear the guest speaker.

(The Hearing was then adjourned, to be resumed on Monday, November 19th, 1951, at 9.30 A.M.)

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The Province of Alberta

PETROLEUM AND NATURAL GAS CONSERVATION BOARD

Application for Permission to Remove or cause to be removed Natural Gas from the Province of Alberta, under the Provisions of the Gas Resources Preservation Act by Western Pipe Lines.

I. N. McKinnon Esq., Chairman

D. P. Goodall Esq.

Dr. G. W. Govier

Session:

Volume_____